

What is claimed is:

1. A tension evaluator comprising:
an actuator to apply a first load and a second load to a chain, the chain being moved a first amount of deflection in response to the first load and the chain being moved a second amount of deflection in response to the second load;
a first sensor to sense an event, wherein a third amount of deflection is associated with the event; and
a second sensor to sense an amount of travel of the chain between the second amount of deflection and the third amount of deflection.
2. The tension evaluator according to claim 1, wherein the first load is relatively greater than the second load.
3. The tension evaluator according to claim 1, wherein the first sensor transmits a signal in response to the sensed event.
4. The tension evaluator according to claim 3, wherein the first sensor comprises a contact pad being disposed between the chain and the actuator and being controlled to move by the actuator.
5. The tension evaluator according to claim 4, wherein the event comprises detachment of the contact pad from the chain.
6. The tension evaluator according to claim 1, wherein the event comprises applying a third load to the chain, the actuator being configured to apply the third load.

7. The tension evaluator according to claim 1, further comprising a third sensor to sense opposition of the chain to load applied by the actuator.
8. An apparatus to measure an amount of tension in a chain and sprocket assembly, the apparatus comprising:
 - an actuator to deflect the chain;
 - a load sensor to sense load applied to the chain;
 - a deflection sensor to sense an amount of chain deflection; and
 - a frame to mount the actuator, the load sensor and the deflection sensor,wherein the frame is attachable to the sprocket assembly.
9. The apparatus according to claim 8, further comprising:
 - a pad to engage the sprocket assembly, wherein the pad is disposed upon the frame.
10. The apparatus according to claim 9, further comprising:
 - a plurality of pads to engage a plurality of points on the sprocket assembly.
11. The apparatus according to claim 8, further comprising:
 - an indicator to generate a signal in response to the actuator making contact with the chain.
12. The apparatus according to claim 8, further comprising:
 - a battery to power the apparatus.

13. An apparatus for evaluating tension comprising:
 - means for applying a first load to a chain, the first load producing a first deflection of the chain;
 - means for applying a second load to the chain, the second load producing a second deflection of the chain;
 - means for sensing an event, the event being associated with a third deflection;
 - means for sensing a travel of the chain between the second deflection and the third deflection; and
 - means for determining whether the travel is between a first value and a second value.
14. The apparatus according to claim 13, further comprising:
 - means for advancing a piston toward the chain to apply the first load;
 - means for sensing an opposition of the chain to the advance of the piston; and
 - means for stopping the advance of the piston in response to the opposition being substantially equal to the first load.
15. The apparatus according to claim 14, further comprising:
 - means for withdrawing the piston from the chain to apply the second load;
 - means for sensing an opposition of the chain to the withdrawal of the piston;
 - and
 - means for stopping the withdrawal of the piston in response to the opposition being substantially equal to the second load.
16. The apparatus according to claim 14, further comprising:
 - means for withdrawing the piston from the chain to generate the event;
 - means for sensing a loss of contact between the piston and the chain; and
 - means for stopping the withdrawal of the piston in response to the sensed loss of contact.

17. The apparatus according to claim 14, further comprising:
means for withdrawing the piston from the chain to apply a third load;
means for sensing an opposition of the chain to the withdrawal of the piston;
and
means for stopping the withdrawal of the piston in response to the opposition
being substantially equal to the third load.
18. The apparatus according to claim 13, further comprising:
means for storing measurements associated with the travel to a table.
19. A method of determining tension in a chain and sprocket assembly, the method comprising:
mounting a chain tension measuring device on the sprocket assembly, wherein the
chain tension measuring device includes:
an actuator to apply a preload and a test load to the chain, the chain being
moved a first amount of deflection in response to the preload and the chain being
moved a second amount of deflection in response to the test load;
a first sensor to sense a loss of contact between the chain and the actuator,
wherein a third amount of deflection is associated with the loss of contact; and
a second sensor to sense an amount of travel of the chain between the
second amount of deflection and the third amount of deflection;
applying the preload to the chain;
applying the test load to the chain;
determining an initial position of the chain;
retracting the actuator; and
determining a final position of the chain in response to the loss of contact.

20. A method of evaluating tension, the method comprising:
 - applying a first load to a chain, the first load producing a first deflection of the chain;
 - applying a second load to the chain, the second load producing a second deflection of the chain;
 - sensing an event, the event being associated with a third deflection;
 - sensing a travel of the chain between the second deflection and the third deflection; and
 - determining whether the travel is between a first value and a second value.
21. The method according to claim 20, further comprising:
 - advancing a piston toward the chain to apply the first load;
 - sensing an opposition of the chain to the advance of the piston; and
 - stopping the advance of the piston in response to the opposition being substantially equal to the first load.
22. The method according to claim 21, further comprising:
 - withdrawing the piston from the chain to apply the second load;
 - sensing an opposition of the chain to the withdrawal of the piston; and
 - stopping the withdrawal of the piston in response to the opposition being substantially equal to the second load.
23. The method according to claim 21, further comprising:
 - withdrawing the piston from the chain to generate the event;
 - sensing a loss of contact between the piston and the chain; and
 - stopping the withdrawal of the piston in response to the sensed loss of contact.

24. The method according to claim 21, further comprising:
 withdrawing the piston from the chain to apply a third load;
 sensing an opposition of the chain to the withdrawal of the piston; and
 stopping the withdrawal of the piston in response to the opposition being
substantially equal to the third load.
25. The method according to claim 20, further comprising:
 storing measurements associated with the travel to a table.